

WHAT IS CLAIMED IS:

1. A method of continuously manufacturing a patterned conductive layer comprising the steps of:

- a) providing a linearly moving substrate;
- b) coating a dispersion containing conductive nano-materials onto a surface of the linearly moving substrate;
- c) drying the coated dispersion wherein the nano-materials self-align into a conductive layer;
- d) coating a protective layer of radiation-curable material over the nano-materials coated on the linearly moving substrate;
- e) exposing the protective layer coating to patterned radiation and curing the exposed pattern in the protective layer; and
- f) removing uncured sections of the protective layer and the underlying sections of the conductive layer to form a patterned conductive layer.

2. The method claimed in claim 1, wherein the conductive nano-materials are nano-wires.

3. The method claimed in claim 1, wherein the conductive nano-materials are carbon nano-tubes.

4. The method claimed in claim 1, wherein the radiation-curable material is a polymer.

5. The method claimed in claim 1, wherein the radiation-curable material is a photo-resist.

6. The method claimed in claim 1, wherein the radiation is ultra-violet radiation.

7. The method claimed in claim 1, wherein the substrate is a flat-panel display substrate.

8. The method claimed in claim 1, wherein the substrate is a touchscreen substrate.

9. The method claimed in claim 1, further comprising coating and drying a plurality of nano-material coatings before the protective layer is coated.

10. The method claimed in claim 1, further comprising coating a second protective layer over the patterned protective layer to planarize the surface.

11. The method claimed in claim 10, further comprising coating and patterning a second nano-material conductive layer on the planarized surface.

12. The method claimed in claim 1, further comprising coating and patterning a second nano-material conductive layer on the patterned conductive layer.

13. The method claimed in claim 1, wherein the patterned conductive layer is transparent.

14. The method claimed in claim 1, wherein the patterned conductive layer is opaque.

15. The method claimed in claim 1, wherein the patterned conductive layer is reflective.

16. The method claimed in claim 1, wherein the nano-materials are sprayed, slot or curtain coated.

17. The method claimed in claim 1, wherein the substrate is a continuous flexible substrate.

18. The method claimed in claim 1, wherein the substrate is a discontinuous substrate provided on a continuous moving belt.

19. The method claimed in claim 1, wherein the protective layer is exposed to patterned radiation through a mask.

20. The method claimed in claim 19, wherein the source of radiation is stationary.

21. The method claimed in claim 20, wherein the mask is stationary.

22. The method claimed in claim 19, wherein the mask and substrate move together during exposure.

23. The method claimed in claim 22, wherein the mask, source of radiation and substrate move together during exposure.

24. The method claimed in claim 1, wherein the protective layer is colored.

25. The method claimed in claim 1, wherein the protective layer is light-transparent.

26. A patterned conductor comprising a patterned nano-material conductive layer and a correspondingly patterned protective layer thereon.

27. The patterned conductor claimed in claim 26, wherein the patterned protective layer comprises ultra-violet radiation absorptive material.

28. The patterned conductor claimed in claim 26, wherein the patterned protective layer comprises cured polymeric resin binder.

29. The patterned conductor claimed in claim 26, wherein the patterned protective layer is transparent.

30. The patterned conductor claimed in claim 26, wherein the patterned protective layer is colored.